

REMARKS

The Examiner's final Action mailed on June 17, 2005 has been received and its contents carefully considered.

In this Amendment, Applicant is amending claims 1 and 7, which remain independent claims, and adding new independent claim 10. For at least the following reasons, it is submitted that this application is now in condition for allowance.

In the final Action, claims 1 and 7 are rejected under 35 U.S.C. 103(a) as being obvious over Marsh et al. (U.S. Patent No. 5,353,009) in view of Tsutsui et al. (JP404345338A) and Itoi (U.S. Patent No. 6,556,625), and claims 2-3 and 8-9 are rejected under 35 U.S.C. 103(a) as being obvious over Tsutsui et al. in view Marsh et al. and Itoi, and further in view of Shirani et al. (U.S. Patent No. 5,617,418). The rejections are respectfully traversed.

In the present invention, a LAN having a power feeding system comprises a line concentrator (that is, a HUB), and a plurality of terminals respectively connected with the line concentrator via corresponding cables, each cable including a power feed line.

The power feeding system in the HUB includes a terminal detecting section (see, for example, telephone terminal detecting section 1, in application Figure 1), common to all terminals, and power control switching sections, one for each of the corresponding power feed lines. The terminal detecting section further comprises a power feed section, a link detecting section, a current monitoring section and power control section.

The plurality of LAN terminals includes at least one terminal that requires power from the power feeding system, which is, for example, a telephone terminal, and at least one terminal not requiring power.

With respect the LAN terminals connected to the HUB, the control section causes the power control switching sections to connect the power feed section to each of the corresponding power feed lines in sequence, and the current monitoring section then detects whether the respective terminal is one that requires power from the power feeding system, based on a preset current value range. If the detected current is within the range, the power feeding system further continues feeding power to the terminal, and if it is not, the power feeding system stops feeding power to the terminal.

With respect to claims 1 and 7, the Examiner points to Marsh as teaching a LAN having a power feeding system, comprising a line concentrator (computer 10 in combination of data concentrator 14), and a plurality of terminals including it was at least one non-telephone terminal, the plurality of terminals (16) being connected to the line concentrator via respective cables (see Figs. 2 and 4-5, cables 22, 24, 26 and 28), each of the cables including therein a signal line (28) delivering data signals for mutual communication between the terminals, and a power feed line (22 and 24), wherein the line concentrator comprises a power feed section (the Examiner points to the entire abstract, e.g., the control station houses the computer and supplies the remote station with electrical power, as well as communicating bidirectionally with the remote stations) for feeding power to at least one terminal via the corresponding power line.

However, the Examiner acknowledges that Marsh fails to teach significant features of the invention recited in claims 1 and 7, namely, a plurality of power feed control switching sections; a current monitor section; a control section for controlling the power feed control switching sections to connect the corresponding power feed lines to the power feed section, for controlling each of the power feed control switching sections to stop feeding the power via the corresponding power feed line. The system in Marsh simply has no need for any of these features because all of the remote stations are fed power all of the time, and, therefore, it does not need the capability to determine whether any of the remote stations are terminals that do not require power.

To overcome these serious deficiencies in the disclosure of Marsh, the Examiner points to Tsutsui as teaching a power feeding system for use with terminal equipment in a LAN, comprising a power feed line (line connected to R11); a power feed section for feeding power to at least one terminal via the corresponding power line (R11 supplies power to the attachment unit interface (AUI)); a power feed control switching section switch (16); a current monitor section (comparator 14 and associated components); a control section for controlling the power feed control switching section to connect the corresponding power feed line to the power feed section, and for controlling each of the power feed controlling switching sections to stop feeding the power via the corresponding power feed line (see the entire abstract) for the purpose of providing a function that stops power feed immediately when detecting an over-current and informs

a fault to a main control processor.

The Tsutsui reference upon which the Examiner relies, only discloses an overcurrent prevention device for use with an individual piece of LAN terminal equipment, as its title implies. There is no disclosure, or even suggestion, in Tsutsui of a plurality of terminals, at least one of which requires power and one of which does not require power, or of a HUB having a plurality of power feed control switching sections for sequentially connecting a common power feed section to a plurality of power feed lines connected to the terminals, as required by amended claims 1 and 7.

Moreover, the device in Tsutsui is only used for preventing overcurrent. There is no disclosure, or even suggestion, of a current monitoring section for detecting whether the value of current flowing in each of the power feed lines when that power feed line is connected to the power feed section is within a preset current value range that indicates that a terminal requiring power is connected to the cable which includes the corresponding power feed line, as claims 1 and 7 also require. In other words, the sole purpose of the device in Tsutsui is to protect a LAN terminal from potential damage due to overcurrent, and not to determine whether the LAN terminal being monitored is a telephone or other type of terminal requiring current from the power feeding system in the HUB. Even if there were a motivation to incorporate the device of Tsutsui into the remote stations of the system in Marsh (which the Applicant believes is not the case), it is respectfully submitted that the combination would not result in the claimed invention.

In the Action, the Examiner further acknowledges that Marsh in view of Tsutsui fails to teach that the plurality of terminals includes at least one telephone terminal. To overcome this deficiency in the combination of Marsh and Tsutsui, the Examiner points to Itoi as disclosing a plurality of terminals including at least one telephone terminal (see Fig. 3b).

As the Examiner notes, the purpose of the invention in Itoi is to accommodate both existing telephone sets and Internet phone devices in a computer network such as LAN (column 1, lines 5-10). However, Itoi fails to teach or suggest any other of the significant features of claimed invention, including: the plurality of terminals being connected to the line concentrator via respective cables, each of which includes a signal

line and a power feed line; a power feed section for feeding power to the at least one telephone terminal via the corresponding power feed line; a plurality of power feed control switching sections; a current monitor section; and a control section for controlling the power feed control switching sections to connect the corresponding power feed lines to the power feed section, and for controlling each of the power feed control switching sections to stop feeding the power via the corresponding power feed line. Thus, even if there were a motivation to combine the teaching of Itoi with those of Marsh and Tsutsui (which the Applicant believes is not the case), it is respectfully submitted that the combination would not result in the claimed invention. At best, the result of the combination proposed by the Examiner would be the system of Marsh, where power is fed to all of the remote stations, one or more of which would be a telephone terminal, and having the device of Tsutsui incorporated in each remote station. The combination would not have the advantageous features of a telephone terminal detecting section, as defined by the independent claims, that feeds power to each of the plurality of terminals (power feed section); detects respectively the value of each current flowing in the corresponding power feed lines and monitors whether the value is within a preset current value range (current monitor section); and if it is, judges the corresponding terminal to be a terminal needing power and continues feeding the power (control section); and if it is not, judges the corresponding terminal to be a terminal not needing power and stops feeding power (control portion).

With respect to claims 2-3 and 8-9, the Examiner acknowledges in the Action that Marsh in view of Tsutsui and Itoi fail and to teach a link detecting section for monitoring each of the signal lines to detect whether the linkage with respect to the LAN, of the terminal connected to the corresponding signal line, is established. To overcome this deficiency in the disclosure of base combination, the Examiner points to Shirani as teaching a link detecting section for monitoring each of the signal lines to detect whether linkage with respect to the LAN, of the terminal connected to corresponding signal line, is established. The Examiner argues that it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teachings of Shirani in the teachings of Marsh in view of Tsutsui and Itoi in order to allow a network to be configured in a mixed protocol or a mixed environment, with, for

example, a single hub connected to a plurality of nodes which operate according to different protocols, with the configuration being achieved automatically, without the need for manually establishing a predetermined protocol beforehand for each node.

The applicant respectfully disagrees. Claims 2-3 and 8-9 require that the control section cause the corresponding power feed control switching section to continue feeding power to the corresponding power feed line when the link detecting section detects that the linkage with respect to the LAN of the terminal connected to the corresponding signal line, is established, while the value of the current flowing in the corresponding power feed line is detected to be within said preset current value range, and further that, the control section cause the corresponding power feed control switching section to continue to stop feeding power to the corresponding power feed line when the link detecting section detects that the linkage with respect to the LAN of the terminal connected to the corresponding signal line, is established, while the corresponding power feed line is disconnected from the power feed section by the corresponding power feed control switching section.

By contrast, Shirani is directed solely to the problem of communications protocol compatibility. As the Examiner observes in the Office Action, the purpose of link detection in Shirani is to allow a network to be configured for mixed protocols, with the configuration being achieved automatically, without the need for manually establishing a predetermined protocol beforehand for each node. Shirani fails to teach or suggest that the link detection function might be used in connection with the control of power fed to various LAN terminal devices.

The fact that the prior art could be modified so as to result in the combination defined by the claims does not make the modification obvious unless the prior art suggests the desirability of the modification. In re Deminski, 796 F.2d 436, 230 USPQ 313 (Fed.Cir. 1986). As is clear from the foregoing, there is nothing in the prior art considered as a whole to motivate the combination recited in claims 2-3 and 8-9.

Without prejudice to the traversal by the Applicant of the Examiner's rejections, claims 1 and 7 are amended herein solely for the purpose of more clearly defining the claimed invention. New independent claim 10 is added to recite the invention in a somewhat different manner that emphasizes the overall function of the terminal detection


section (Fig. 1, item 1) in judging whether each terminal connected to the line concentrator is a terminal needing power or a terminal not needing power based on whether the value of the current detected in the corresponding connecting cable is within a preset current value range (see, for example, application page 5, lines 8-13). For the reasons discussed above, the Applicant believes that new claim 10 also patentably distinguishes over the applied prior art combination..

In summary, it is respectfully submitted that claims 1 and 7 as amended, as well as claims 2-3 and 8-9 and new claim 10, distinguish over the applied prior art references, whether considered individually or in combination. It is requested that after this Amendment is entered pursuant to 37 CFR 1.114, the rejections set forth in the final Office Action be reconsidered and withdrawn, so as to place the application in condition for allowance.

If the Examiner believes that a conference would be of value in expediting the prosecution of this application, the Examiner is hereby invited to telephone the undersigned counsel to arrange for such a conference.

Respectfully submitted,

November 16, 2005
Date


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